



Laboratory Equipment Manufacturer
www.mrclab.com



Operation Manual for VACUUM EMULSION MIXER HOM-010V



PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

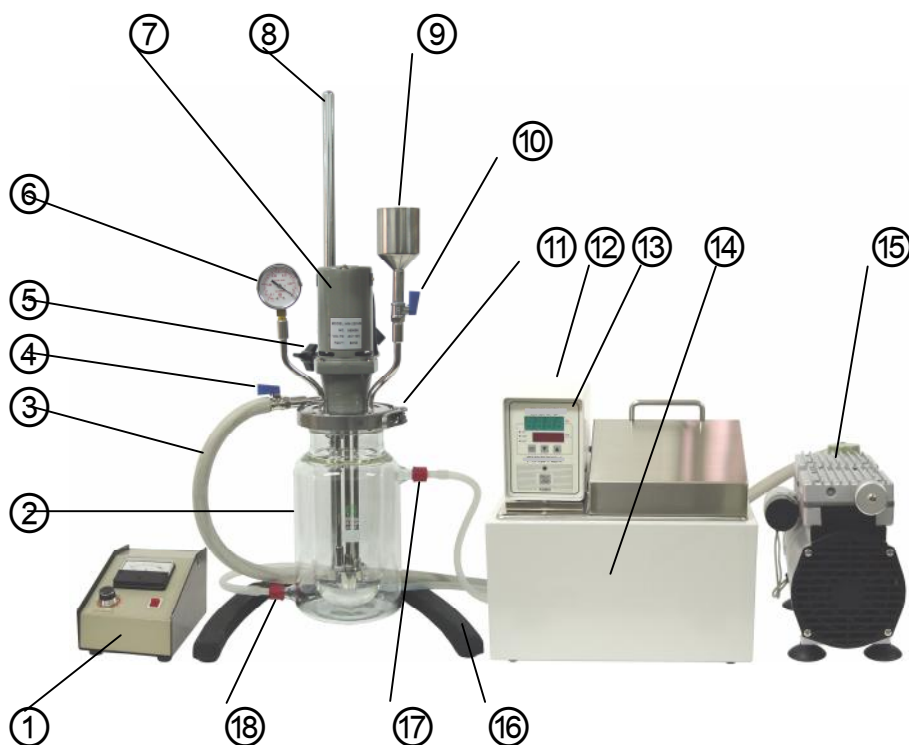
3, Hagavish st. Israel 58817 Tel: 972 3 5595252, Fax: 972 3 5594529 mrc@mrclab.com

MRC.VER.01-3.12

I. Specifications

Model	HUM- EF EV
Power	AC 220V/50Hz
Motor	DC220W
Capacity of Reactor	0.1 ~ 2L
Temperature Range	RT+5℃ ~ 80℃
Capacity of Water Bath Tub	10L
Heater	600W
Vacuum Pump Power	270W
Vacuum Range	-740mmHg
Vacuum Rate	60L/min

II. Outline :



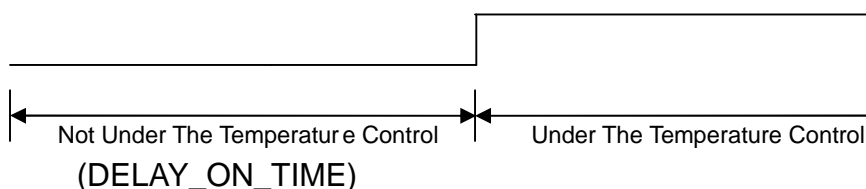
①	Rotation control box	⑧	Pole	⑮	Vacuum bump
②	Vacuum reactor	⑨	Material entrance hopper	⑯	Stand
③	Air-extracting tube	⑩	Entering volume control valve (Air discharging valve)	⑰	Circulating Water outlet
④	Air-extracting valve	⑪	Connecting clipper	⑱	Circulating Water inlet
⑤	Clip holder	⑫	Water inlet/outlet (on the backside of Water Bath Tub)		
⑥	Vacuum meter	⑬	Constant temp. control box of bath tub		
⑦	Motor	⑭	Constant temp. bath tub		

III. Operation Instructions :

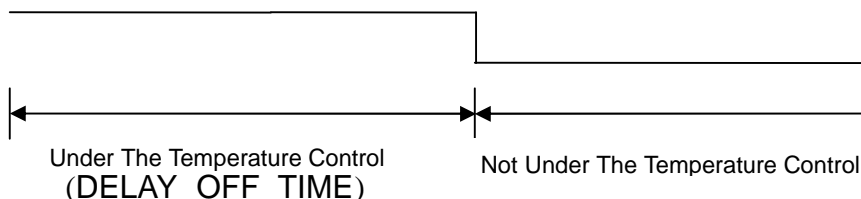
- 1) Put the sample into the reactor and set the O-ring into the fillister around the opening of the reactor. Combine the emulsion mixer and the reactor with the fastening clipper.
- 2) Connect the circulating water inlet to the water tub outlet with a silicone tube. (The correct connection is very important.)
- 3) Fill around eight-tenths of the constant temp. tub with water, and then plug the power in. Turn on the constant temp. tub and start heating it. Please add water into the tub after the water circulation processing for keeping around eight-tenths full of the constant temp. tub water.
- 4) Press SET button of the bath tub to do a temperature setting, the setting indicator will light at the same time. Press ▲ ▼ to adjust the temperature value and press SET button one more time to confirm the setting at final.
- 5) Turn on the power switch on the control box of the emulsion mixer, and turn the speed knob to a proper speed for getting a good efficiency.
- 6) Connect the bump and air-extracting valve with a vacuum tube, and open the air-extracting valve and close the entering volume control valve. When those steps are ready, plug in the power cord and turn on the machine for starting vacuum the reactor.
- 7) Feed some more of the sample to the material entrance hopper if it's necessary to increase the volume. When the entering volume control valve is opened, the sample should flow in. After finishing the air-extract job, it's possible to cause the liquid high because of an inflation appearance; User can open the entering volume control valve for reducing the height of the liquid.
- 8) After finishing the emulsification job, it's necessary to turn off the machines : The first one is the emulsion mixer, and next one is the water bath tub, and the last one is the vacuum bump.
- 9) After doing the air-extracting, the first job is to recover the pressure in the reactor to the normal, and then to turn off the bump for avoiding the converse extraction.
- 10) For discharging the water in the circulating space of the reactor, the way is to move the reactor to the position higher than the bath tub, and release the red screw beside the circulating water outlet, thus the water should flow back to the water bath tub.

IV. Operation Steps (Heat Warning of Water Bath Tub 、 Temperature Proofreading and Adjustment 、 Time Control & Setting)

- 1) Keep pressing SET button for 5 seconds till PV/SV display AL -H (Set value of the top temperature range, the original set value is 5℃), the moment should be available to do setting, User can Press ▲ ▼ to adjust the temperature value to the desired top range for a temperature warning alarm setting.
- 2) Press SET button one more time after finishing last described steps, and then PV/SV display AL-L (Set value of the bottom temperature range, the original set value is -5℃) to the bottom temperature range setting to do a temperature warning alarm setting.
- 3) Press SET button one more time after finishing last described steps, and then PV/SV display OFS (Temperature Proofread and Adjusted value). User can Press ▲ ▼ to adjust to a new setting value.
For example : SV set value was 37.0℃ and PV set value was 37.0℃ by last use, but actually it's 36.5℃ now telling by a temperature meter, therefore OFS value should be reset as -0.5℃.
- 4) Press SET button one more time after finishing last described steps, and then PV/SV display ON(DELAY_ON_TIME), User can Press ▲ ▼ to adjust to the desired DELAY_ON – time (Unit = Min).
(The water bath tub will buzz and flash few seconds as a reminder when it's time to starting the set temperature control. Press SET button one more time to confirm and clean up the displaying.)



- 5) Press SET button one more time after finishing last described steps, and then PV/SV display OFF(DELAY_OFF_TIME). User can Press ▲ ▼ to adjust to the desired DELAY_OFF – time (Unit = Min).
It's time to stop the set temperature control. Press SET button one more time to confirm and clean up the displaying.)



- 6) Keep pressing SET button for 5 seconds till PV /SV display the temperature value. All the setting is done when SET indicating light is off.

Remarks :

*** *DELAY_ON and DELAY_OFF can not be carried out at the same time.***

*Indicating lights : OP – lights on during the heat is increasing
 ALM – lights on during the temperature is over top/bottom set range. The water bath tub should work to reach SV value, and PV and SV should be same at that moment. If User didn't change SV, and PV was over the total SV plus AL -H or AL-L set value, ALM indicating light should be on.

 SET – lights on during setting the temperature

V. Cautions :

- 1) Please install the machine on a horizontal and stable place.
- 2) Extracted air should be neutral air. It's necessary to filter the air when it is acid, alkali or mist.
- 3) When the water surface inside of the filter is higher than 2/3, it's necessary to discharge water first.
- 4) Try best to keep the material be liquid-like into the hopper and avoid flowing into the motor of the mixer.
- 5) Don't try to use the constant temperature water bath tub when there's no water inside the tub.
- 6) The constant temperature water bath tub is not available for any corrodible liquids.

COMPARISON TABLE FOR GRADUATION AND RPM

(* It's under a normal situation; it's for reference only.)

GRADUATION	1.5	2	3	4	5
RPM X10	74	201	555	713	844
GRADUATION	6	7	8	9	10
RPM X10	937	1021	1090	1168	1205

COMPARISON TABLE FOR GRADUATION AND RPM

(* It's under a vacuum situation; it's for reference only.)

GRADUATION	1.5	2	3	4	5
RPM X10	124	264	548	698	808
GRADUATION	6	6.5	—	—	—
RPM X10	1184	1214	—	—	—